

Previous Section

Section 2

Acquisition Planning

1.0 -- Acquisition Planning Documents

The following information on CALS should appear in acquisition planning documents. This information is based upon the requirements of DoD 5000.2-R paragraph 3.3.4.5 and are consistent with DoD strategy for CALS implementation.

1.1 -- Integrated Program Summary

The Integrated Program Summary (Appendix C of the Acquisition Strategy Report), should include the following statement:

"The [XYZ] program will take advantage of existing and emerging automation and integration capabilities to establish a computer-based environment for creating, managing, and storing data elements once for multiple applications across engineering, design, manufacturing, and logistics functions and processes. The program will stress continuous engineering, digital data delivery, and on-line electronic information services in the solicitation process and resulting contract(s). CALS standards and specifications for digital technical information exchange will be utilized during implementation."

1.2 -- Acquisition Plan

The Acquisition Plan (AP) should also include the following statement:

"The [XYZ] project intends to implement CALS initiatives to reduce life cycle costs, improve product quality, reduce program risk and reduce the schedule of the design, development and production. The technical information required in support of the project will be made accessible through on-line contractor integrated technical information (electronic) services; physical delivery of data required for sustaining support activities will be in accordance with approved CALS format standards and specifications. Contract data items that cannot be cost-effectively delivered in accordance with the CALS standards/specifications will be delivered in mutually agreeable digital formats. The digital formats for all data users and user systems will be determined cooperatively between the government and contractor using the Government Concept of Operations (GCO), developed by the government program office, as the basis for selection."

The draft and final RFPs will incorporate requirements for the offeror to address implementation of concurrent engineering and digital delivery/electronic access of program technical information. Significant weighting will be applied to the CALS elements in source selection evaluation. Offerors will be evaluated on their ability to provide integrated, shared databases environments for engineering analysis, design, manufacturing and logistic processes; and their use of CAD/CAM/CAE methods, product models/databases and simulation tools to improve product design, testing, manufacturing and support system development. The program will integrate specific program solutions with those developed by DoD

infrastructure modernization initiatives and will implement, where value-effective, joint service CALS systems for the creation, management and use of digital technical information."

2.0 -- CALS in Requests for Proposal (RFPs)

The RFP defines the scope of work, schedule, conditions, clauses, instructions, evaluation criteria, and deliverables to be provided in implementing CALS for the program. The requirements for electronic (on-line) services, digital data delivery, and functional integration should be addressed by the CALS RFP elements described below.

2.1 -- Supplies and Services/Prices/Costs (RFP Section B)

A separate Contract Line Item Number (CLIN) should be established for CITIS implementation. This enables the cost of CITIS implementation and operation to be accumulated against this line item allowing cost benefit evaluation and consideration of CITIS options or alternatives. The establishment of the CITIS CLIN also recognizes that the CITIS period of performance may be different from the period of performance for the contract. Specific CITIS requirements are to be included in section C of the RFP.

The CITIS CLIN should require that the cost of the service be subdivided into its component elements for pricing and evaluation purposes. These elements include service establishment, telecommunications, access/connect time, security, equipment lease/purchase, storage capacity usage, application development, contractor infrastructure, and maintenance.

2.2 -- Statement of Work (SOW)/Statement of Objectives (SOO) Requirements (RFP Section C)

SOW/SOO requirements must address data requirements along with other contractor required support.

Note: throughout this Desktop Guide, the term "SOW" shall be used to represent both the SOW and SOO.

The SOW requirements for CALS implementation will generally fall into three areas:

- . digital data delivery on magnetic or optical media,
- . on-line remote access to CITIS via telecommunications software or a CITIS environment, and
- . post-contract award CALS planning.

2.2.1 -- Technical Data and Data Acceptance

In the GCO section, the selection of delivery options for data deliverables ranges from paper to magnetic tape to optical disk. Standards used in the information exchange may consist of:

- . the CALS exchange standards,
- . commercial data exchange standards,
- . mutually agreed-to proprietary product standards,
- . a combination of these standards.

Generally these requirements will be included in block 16 of the CDRL. However, acquisition reform is resulting in a substantial reduction in or elimination of the CDRL. In these cases, data format and delivery requirements must be specified in the SOW. This could be handled as a description of program

management communications and direct how all communications and deliveries of data will be accomplished. Alternatively, the SOW could describe how Integrated Product Teams (IPTs) will communicate and exchange information.

2.2.2 -- Tailored Options

The definition of basic CITIS access to data is established with guidance from MIL-STD-974. Individual CDRL, CLIN, or Exhibit items must be annotated to identify those requiring CITIS access. Program Managers must tailor this standard, as required, to include the mandatory core CITIS functions and any tailorable CITIS functions. Tailorable options may be requested to be priced as alternatives to allow cost/benefit assessment.

The SOW should identify CITIS implementation requirements that are not specified in MIL-STD-974. These requirements include:

- . number of users to be served,
- . hours of operation,
- . system response requirements,
- . special security requirements,
- . selection of Defense Information Systems Network (DISN) or third party leases for communications, and
- . the period of performance for each location where CITIS is provided.

If MIL-STD-974 is not being used, the SOW must identify all CITIS requirements. All Government Furnished Equipment (GFE) must also be specified in the SOW. CITIS options that include access to contractor computer assets and software will require development of specific RFP requirements. These requirements include a detailed description of the type of use supported and the frequency of use. Access to software tools can be specified on the CDRL item for data that will be processed by the tools.

2.2.3 -- Post Award CALS Planning

In general, CALS should be part of the planning and approach to doing business up front in order to ensure that funding will be available for implementation. However, some Program Managers may choose to have the contractor team continue to do CALS planning after contract award. This CALS activity may be in the form of a study to continually explore opportunities that can be summarized in a CALS planning document for cost-reducing process improvements. This plan typically takes the form of a CALS Implementation Plan (CALSIP), although it can be renamed or combined with other plans (e.g., IDE Implementation Plan, Data Management Plan, etc.).

The CALSIP must not be a static document. The CALSIP, if chosen as an option, will be incorporated into the contract by reference, and the contractor must revise it to reflect changing requirements, technology, and improved processes. Any changes in the CALSIP will be incorporated by contract modification.

This may be an especially effective strategy for Program Managers of existing defense systems to apply CALS to their programs. Process improvements that weren't practical or possible at contract award, may make very good business sense as technology and infrastructure evolve over time. The CALSIP can be

used to summarize the results of this post-award CALS planning/study process. (See DID DI-IPSC-81353.)

The Government and the contractor have authority to mutually change the CALSIP. For a particular program, the Government may approve the CALSIP with follow-on contracts. The contractor may revise the CALSIP by agreement between Government and contractor representatives. The CALSIP must ensure that contractor-supplied services will be compatible with the Government in support of the contract and its related program.

It should be noted that these same opportunities for process improvements may be identified via the Value Engineering Change Proposal (VECP) process, through unsolicited proposals, through use of a technology refreshment clause, or by in-house Government personnel.

2.2.3.1 -- SOW Language -- CALS Planning Document

If desired, the contractor can be required to prepare a CALSIP or other CALS planning document that describes the ways in which CALS techniques are to be applied throughout the life of the contract to satisfy requirements for service, infrastructure, media, and format. The document should be a living document to explore digital data and CITIS opportunities and technology as contractor/Government infrastructure evolve over time, and should be updated periodically throughout the life of the contract. The CALS document updates should define implementation plans for the upcoming period in greater detail, resolve outstanding strategy issues, respond to strategic and technology changes, and recommend specific alternative approaches for continuation of CALS and CITIS in the next period.

If a CALSIP is being required, the CALSIP DID (DI-IPSC-81353) provides a complete list of the CALSIP contents. The CAC, if one was prepared, should serve as the basis for any CALS planning document. The CALSIP contents as specified in the DID are listed below, although these topics are recommended for any CALS planning document:

- . Listing of the CALS hardware and software architecture to be used, description of the CITIS system, including source and destination systems, and relationships with government receiving systems.
- . Description of the contractor's prior experience in the creation, management, use, and exchange of digital information including generation, storage, indexing, and distribution.
- . Identification of contractor's capabilities for integrating applications and data bases to improve engineering, manufacturing, and support processes.
- . Description of the procedures which eliminate data redundancy.
- . Description of the CALS program management approach including: program objectives, strategy, product quality program, test and evaluation program, schedule/timeline, and risk; contractor's responsibilities; and Government responsibilities.
- . Description of proposed CITIS on-line capabilities. The description shall include:

1. Linkages among engineering, manufacturing and logistics.
2. Number and location of sites to be served, hours of operation, and system response requirements.
3. Telecommunications issues including selection of Government data networks or third parties lease for communication, and the period of performance that includes each service location as the requirement varies.

Description of the methodology to be used for tracking actual versus projected cost for the proposed CALS implementation.

Outline of the proposed actions and upgrade capabilities that may be pursued in subsequent life-cycle phases.

Description of telecommunications data protection and integrity, including risk assessment and system security certification.

2.3 -- Inspection and Acceptance (RFP Section E)

The unique aspect of CALS digital data deliverables is that they will be subject to inspection and acceptance on several levels. The most important level of acceptance is the data content and format. Because the delivery must adhere to requirements in the SOW for data exchange formats and media, these must be verified prior to the inspection of the data content.

2.3.1 -- Levels of CALS Digital Data Acceptance

Physical Media: The first level of acceptance is verification of the physical media. This acceptance will ensure that the delivery media was in accordance with delivery specifications. This level of inspection will not be used if data has been formally delivered via CITIS.

CALS Data Exchange Formats: The second level of acceptance is adherence to the specified CALS data exchange format(s). This level of acceptance is applied to the MIL-STD-1840 digital data format if specified by the contract. This level of acceptance may be aided by automated tools obtained, if available, from the CALS Test Network or each Service component CALS office.

Data Content and Format: The last level of acceptance is the data content and format. This acceptance will be performed either manually or through the use of computer-assisted tools. Pre-acceptance of any and all levels of acceptance may be performed at the contractor's facility and final acceptance shall always be performed at a Government facility.

2.3.2 -- CITIS Acceptance

CITIS requires additional acceptance requirements to be applied. Acceptance of the service and the CITIS CLIN, if utilized, is a verification that the contractor has provided the service as specified. The CITIS functional requirements are defined by the particular statement of work. These functional requirements

may include service availability, maintenance response, and provision of core and tailorable CITIS functions.

Contractors must demonstrate the service as the basis for CITIS acceptance testing. The demonstration must include functional capabilities and verification that the CITIS will not alter the delivered data. Such a demonstration must be rerun if the contractor has performed major maintenance or if the sending or receiving systems have been changed enough to warrant an additional test. If the data manager determines that specific test data is necessary for CITIS testing, the contractor must provide that test data for review at a government facility. The Government must accept on-line access service when the contractor demonstrates that contractually required core and tailorable CITIS functions can be performed from a terminal or workstation at a government facility.

Electronic data transfer service acceptance should occur when the system can achieve a single instance of transfer of the specific deliverable type. The transfer must successfully download and retrieve data into the government's system when contractually required. This data may be real product data or test data.

2.4 -- Special Contract Provisions (RFP Section H)

The primary emphasis for any special contract provision is the ability to refresh or upgrade the technology baseline applied at contract award. Program Managers should look for every opportunity for technology insertion advantages in an evolving CALS environment. Incentive mechanisms can be applied to offer the contractor team opportunities to improve the CALS solutions initiated at contract award. The use of Value Engineering Change Proposals (VECPs) is one example of an incentive mechanism.

2.5 -- Attachments (RFP Section J)

The CDRL requirements in section J of the RFP provide a contractual means by which defense system data, in digital formats or otherwise, are delivered to the Government. To receive technical information in CALS standard digital formats, the CDRL has to clearly identify the appropriate CALS requirements documents for content, structure, and format compliance as referenced in MIL-STD-1840. MIL-STD-974 (CITIS) is used to identify on-line access and delivery requirements. The GCO is included in this section as GFI. Note that if a CDRL is not used, the CALS requirements for data content, format, and delivery media should be specified in the Statement Of Work (SOW).

Programs must assign responsibility to an organization for monitoring contractor-prepared data. Procedures must be established for the inspection, acceptance, and access of contract data prior to contract award. Digital contract data made available to the Government through CITIS must be officially authorized by the contractor for Government inspection and acceptance. For physically delivered contract data in hard copy, procedures must be established regarding receipt and inspection of the data.

Block 14, Distribution

This block must be used to enter the addresses and the corresponding number of draft and final copies to be provided. Block 14 will include digital media details and constraints such as:

Source document requirements of tape density per inch,

- . Tape size,
- . Record and header formats,
- . File headers,
- . Files constructs, and
- . Target system environment.

Block 16, Remarks

This block must be used to provide additional information for blocks 1 through 15. Examples include clarification relative to distribution statements, DID tailoring requirements, use of contractor format, and distribution of the data. Block 16 is particularly important when the data item requires on-line access or digital delivery.

2.6 -- Instructions to Offerors (RFP Section L)

When desired, section L should be used for instructing potential offerors to prepare and submit a comprehensive Contractor's Approach to CALS (CAC) that describes contractor capability and experience in the area of CALS. Section L can also be used to offer potential offerors the opportunity to propose alternative forms of delivery of digital data products and information services

The CAC is a description of the contractor's approach, experiences, and successes in the creation, management, use, and exchange of digital information. It should also provide an overview of how CALS will be used under that contract to optimize operations and data management efficiency. This information is particularly important to a Program Manager during the Source Selection Process. Information in the CAC is used to gauge the risk associated with the contractor's ability to provide the digital data products and services required by the RFP. After contract award, the CAC should be used as the basis for the CALSIP.

2.6.1 -- CAC Information

The Program Manager should instruct the offeror to include the following information in the CAC:

- . The contractor's approach and experiences in the management, use, and exchange of digital information. This description must include a discussion of the generation, storage, indexing, distribution, and delivery of digital data products.
- . The contractor's approach and experience in integrating applications and databases for engineering, manufacturing, logistic support, and program management processes so as to facilitate the transfer and sharing of information among functional areas.
- . CITIS (if required in the RFP) system test and evaluation, including test management concept, pilot demonstration, inspection and acceptance.
- . The general procedures, specifications, software applications, and database services utilized by the CITIS. Describe how the CITIS will take advantage of the existing Government infrastructure (provided in the GCO) for connection, presentation, and access to CITIS data.

- . The development and implementation of CALS support hardware and software architecture, reference documents and definitions.
- . The integration of contractor information systems with Government receiving systems as depicted in the CALS GCO.
- . Data protection and integrity, including risk assessment and system security certification.

2.6.2 -- Alternative proposals

In section L of the RFP, offerors should be encouraged to review the GCO and the RFP data requirements and propose alternative delivery methods that reduce life-cycle costs and improve processes. Estimated costs and benefits should be documented to reflect all significant investments, transition, and operating expenses associated with the various alternative digital delivery methods (Government and offeror expenses and benefits). Cost-effective alternatives will be incorporated into the contract.

Alternative proposals can significantly reduce costs because optimum CALS implementation is achieved through the most effective combination of Government and contractor infrastructure (hardware, software, and communications). Each offerors' infrastructure will be different and a program can potentially achieve greater benefit and reduced cost through alternative standard digital delivery methods.

2.7 -- Evaluation Factors (RFP Section M)

Section M describes how each area of the proposal will be evaluated and the relative value of each area. The source selection evaluation team will review proposals for compliance to the RFP and evaluate the degree of risk associated with the contractors' approach to meeting the CALS requirements.

2.7.1 -- General Evaluation Criteria

General evaluation criteria are used to evaluate the contractor's compliance with CALS sections of the RFP with respect to CALS implementation. Value for "CALS Implementation" shows up in a number of different areas. Offerors' proposals for digital delivery of CDRL items will be evaluated by the area requiring them, e.g., Technical Publications personnel will evaluate the Technical Publications part of proposals. Their evaluation will include assessment of value for delivery of CDRL items in the required CALS formats. The team also assesses the overall value of proposed data integration capabilities in response to Section L. Overall, the value of applying the CALS strategy should be a lower life-cycle cost and higher quality product. Proposals should be awarded higher points for:

- . Creation of digital data early in the design and development process,
- . Early and efficient digital access to and delivery of technical information,
- . On-line access to contractor applications and analyses,
- . Use of standard systems and formats,
- . Low maintenance solutions that offer levels of integration that simplify business processes, and
- . Systems that include automatic controls to manage data accuracy and timeliness.

2.7.2 -- CITIS Evaluation Criteria

The source selection evaluation team should have a high confidence in the proposed offeror's ability to meet the following requirements:

- . Data acceptance and CITIS functionality,
- . System and administrative security capabilities,
- . Interchange requirements,
- . System configuration controls and procedures,
- . Proposed transmission methodology,
- . Capabilities of database management and retrieval applications to acquire and support a defense system in an integrated, digital environment.

3.0 -- IDE Implementation Checklist

The following checklist is a slightly modified version of the list included in the Army's IDE Implementation Handbook entitled "Assessment of Project Management Operations in an Integrated Data Environment." Filling out this checklist as part of the acquisition planning process can help the Program Manager and the Acquisition Team understand the current state of the program and what needs to be done to implement an IDE.

1.0 IDE Development

- | | | | |
|-----|--|-----|----|
| 1.1 | Have the data types required below been identified? | Yes | No |
| | -Product Data | | |
| | -Logistics Data | | |
| | -Publication Data | | |
| | -Management & Administration Data | | |
| 1.2 | Have the data users been identified? | Yes | No |
| | -Management | | |
| | -Engineering/Design | | |
| | -Supply | | |
| | -Training | | |
| | -Manufacturing | | |
| | -Maintenance | | |
| 1.3 | Has the PM identified what the user will do with the data? | Yes | No |
| | -View only | | |
| | -Comment/Annotate | | |
| | -Update/Maintain | | |
| | -Extract/Process | | |
| | -Archive | | |
| 1.4 | Have the users' infrastructure been defined? | Yes | No |
| | -Hardware | | |

- Software
- Networks
- Communications

- | | | | |
|-----|--|-----|----|
| 1.5 | Have the data delivery/access categories been identified?
-Digital processable data files
-CITIS | Yes | No |
| 1.6 | Has the required format for data delivery/access been determined?
-Text
-Graphic
-Audio/Visual
-Integrated Data File | Yes | No |
| 1.7 | Have the data interchange standards (military or commercial) been identified?
-Text standards
-Graphic standards | Yes | No |
| 1.8 | Have the mechanisms for digital delivery been identified?
-Telecommunications
-DISN
-Contractor-specific | Yes | No |

2.0 Technical Data Packages

- | | | | |
|-----|--|-----|----|
| 2.1 | Does the acquisition contract specify the delivery of technical information (CAD data/Product data) in a digital format IAW MIL-M-28000? | Yes | No |
| 2.2 | Is access to the contractor's technical database initiated via CITIS? | Yes | No |
| 2.3 | Do identified users possess the necessary hardware, software, and telecommunications capacity to receive/view/annotate technical data? | Yes | No |
| 2.4 | Are provisions specified in the acquisition contract, upon final delivery to the government, for maintenance and access at the contractor site or transfer to a government repository (JEDMICS) in a processable digital format. | Yes | No |

3.0 Program Management

- | | | | |
|-----|---|-----|----|
| 3.1 | Are program management data products such as Program Plans, Program Management Reports, Schedules, Test Plans and | Yes | No |
|-----|---|-----|----|

Reports, Meeting Minutes, etc., delivered and accessed in a mutually agreeable desktop publishing, word processor, spreadsheet, or scheduling package?

4.0 Technical Manuals

- | | | | |
|-----|---|-----|----|
| 4.1 | Does the SOW specify the development of IETMs or the delivery of technical manual data in digital format? | Yes | No |
| 4.2 | Is technical manual data in a processable (digital), as opposed to composed (paper, raster), format? | Yes | No |
| 4.3 | Do the intended users possess the required computer hardware and software capability to receive digital files? | Yes | No |
| 4.4 | Is delivery of digital technical manual files in accordance with MIL-R-28002 for raster data or MIL-D-28003 or MIL-M-28001 for text and graphic data? | Yes | No |
| 4.5 | Is delivery or access of technical manual data specified to occur via interactive CITIS? | Yes | No |
| 4.6 | Is final delivery of technical manual files to the government specified in digital format to allow for future maintenance and update? | Yes | No |

5.0 Control Architecture

- | | | | |
|-----|---|-----|----|
| 5.1 | Does the system adhere to established DoD standards? | Yes | No |
| 5.2 | Are the standards vendor independent? | Yes | No |
| 5.3 | Do the standards support an open systems environment? | Yes | No |
| 5.4 | Do the standards support or hinder the attainment of Enterprise Integration goals and objectives? | Yes | No |
| 5.5 | Do the standards support cross functional integration? | Yes | No |
| 5.6 | Does the operating system support an open systems environment Or is it vendor unique? | Yes | No |

6.0 Computer System Architecture

- | | | | |
|-----|--|-----|----|
| 6.1 | Does the architecture support an open systems environment? | Yes | No |
| 6.2 | Is any part of the architecture proprietary? | Yes | No |

6.3	Does the architecture support the throughput requirements?	Yes	No
6.4	Does the architecture support the functional requirements?	Yes	No
6.5	Does the current architecture have excess capacity?	Yes	No
6.6	Does the current architecture support cross functional integration?	Yes	No
6.7	Is a configuration management system in place?	Yes	No
6.8	Do the configuration management procedures adequately encompass the entire life-cycle.	Yes	No
6.9	Is the configuration management system automated?	Yes	No
6.10	Are standard communications protocols used?	Yes	No

7.0 Information Architecture

7.1	Does the architecture support an open systems environment?	Yes	No
7.2	Is any part of the architecture proprietary?	Yes	No
7.3	Does the architecture support the functional processes?	Yes	No
7.4	Does the architecture adhere to existing DoD standards?	Yes	No
7.5	Does the architecture rely on any legacy systems?	Yes	No
7.6	Is the current architecture "stovepipe" in nature?	Yes	No
7.7	Are the data elements approved DoD standard data elements?	Yes	No
7.8	Are the data element definitions appropriate and consistent?	Yes	No
7.9	Are all data flow requirements testable?	Yes	No
7.10	Are data flows consistent with Interface Requirements Specifications?	Yes	No
7.11	Is the system designed for easy modifications as necessary?	Yes	No
7.12	Are reusable designs and software considered when designing	Yes	No

the system?

- | | | | |
|------|--|-----|----|
| 7.13 | Are requirements for reliability specific and realistic? | Yes | No |
| 7.14 | Does the decomposition of requirements enhance testability, modularity of design, reusability? | Yes | No |
| 7.15 | Do the defined system capabilities meet the functional requirements of the end users? | Yes | No |
| 7.16 | Are performance characteristics quantifiable and measurable? | Yes | No |

Next Section